HANDBOOK FOR

Environmental RISK Decision Making

VALUES, PERCEPTIONS, & ETHICS

C. RICHARD COTHERN

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PREFACE

A one-day symposium on "Environmental Risk Decision Making: Values, Perceptions and Ethics" was held by the Environmental Division at the National Meeting of the American Chemical Society in Washington, D.C., August 24, 1994. The symposium consisted of 2 keynote speakers and 14 following presentations. The papers presented are combined with eight others to flesh out the topics for this volume.

WHAT DO VALUES AND ETHICS HAVE TO DO WITH ENVIRONMENTAL RISK DECISION MAKING?

Values and ethics should be included in the environmental decision-making process for three reasons: they are already a major component, although unacknowledged; ignoring them causes almost insurmountable difficulties in risk communication; and because it is the right thing to do.

Values and value judgments pervade the process of risk assessment, risk management, and risk communication as major factors in environmental risk decision making. Almost every step in any assessment involves values and value judgments. However, it is seldom acknowledged that they even play a role. The very selection of methodology for decision making involves a value judgment. The selection of which contaminants to study and analyze involve value judgments. Weighing different risks involves value judgments. We cannot, and should not, exclude values and value judgments from the environmental decision-making process as they are fundamental to understanding the political nature of regulation and decisions that involve environmental health for humans and all living things.

One of the major problems in risk communication is the failure of different groups to listen to each other. For example, many animal rights groups object to the use of animals in toxicological testing on ethical and moral grounds. The AMA and other scientific groups have mounted a response that argues that many human lives have been saved (life lengthened) by information gained from animal testing. Both sides have a point, but neither is listening to the other. These represent two different value judgments and these values are the driving force in the different groups. It is essential to understand this and include it in any analysis that hopes to contribute to understanding in this area. Any analysis must include values such as safety, equity, fairness, and justice — as well as feelings such as fear, anger, and helplessness. These values and feelings are often the major factor in effectively communicating about an environmental problem.

Lastly, including values such as justice, fairness, and equity (present and intergenerational) is the right thing to do. Any effective environmental program needs to be ethical to survive in the long term.

ENVIRONMENTAL RISK DECISION MODELS

The existing models for environmental risk assessment do not contain any explicit mention of values, value judgments, ethics, or perceptions. However, these are often the main bases used in making such decisions.

For example:

- Alar was banned to protect *children.*
- The linear, no-threshold dose response curve and the use of combined upper 95% confidence limits are based on *safety* not science.
- The Superfund program started with the idea that if I can sense it, it must be bad, while indoor radon has met with widespread apathy because it cannot be sensed, so why worry?
- The idea of zero discharge is based on the *sanctity of the individual.*
- Forests and wetlands are preserved because of *stewardship.*
- Nuclear power is avoided because of fear of *catastrophe.*

The general theme of the symposium was to examine the place of values, value judgments, ethics, and perceptions in decision models. The hypothesis is that these characteristics are directly involved in current risk decisions, but that existing models do not include them. In some decisions, attempts are made to disguise these characteristics of values and ethics with other labels such as "scientific" or "technical". Values and ethics seem like perfectly good ways to analyze, balance, and choose in the environmental risk decision-making process and since they are widely used, why not acknowledge this and formally include them in the models?

Are the current and future environmental problems and decisions more complex and of a different character that those of the past? If so, then a new decision paradigm will be needed. Some have observed that the current environmental problems are characterized by levels of complexity and uncertainty never before experienced by any society.

GOAL AND OBJECTIVES OF THE SYMPOSIUM

The goal of this volume is to examine the place values and value judgments have in the process of environmental risk decision making.

Broadly stated, there are three major objectives: viz., bring together the disparate groups that are and have been working in this area; develop a model of environmental risk decision making that includes values, perceptions, and ethics; and develop an environmental ethic.

- To bring together disparate groups to share thoughts and biases concerning the role of values in environmental risk decision making — a partial list is shown below:

  - Ethicists
  - Decision makers
  - Risk assessors
  - Economists
  - Scientists
  - Philosophers
  - Journalists
  - Theologians
  - Attorneys
  - Policy makers
  - Environmentalists
  - Regulators

- To develop a model that describes how the participants think environmental risk decision making should be conducted. This process involves several components:

  1. To explore the involvement of values and value judgments in the development of risk assessments, cost assessments, and feasibility studies
  2. To examine current environmental decisions to determine the role values and value judgments play in the process
  3. To develop approaches and methodologies that can involve the so-called objective and subjective elements into a balanced process for making environmental risk decisions
  4. Looking for what the options are, determine how to balance all the components of decision making and to be explicit about the values, perceptions and ethics

- To promote the development of an environmental ethic

One overall objective is to use the value of honesty and ask that the values, value judgments, and ethical considerations used in environmental risk decisions be expressed and discussed. To a scientist, Brownowski's comment, "Truth in science is like Everest, an ordering of the facts", is a most important value.

It is a conclusion of this line of thinking that we should unmask the use of values in environmental decisions and challenge decision makers to clearly state how they are using values.

SUMMARY

The summary presentation of the symposium consisted of three propositions and four recommendations. The strong versions of the propositions are

representative of the views of many of the participants, while the weaker versions would be shared by only some of the participants.

The first proposition in strong form is that all facets of risk assessment are value laden. A weaker version of this is that risk assessment is socially constructed and thus depends on the context.

The strong version of the second proposition is that public values are relevant in standard setting. A weaker version of this proposition is that public values should trump scientific value when there is a conflict.

For the third proposition, the strong version is that risk assessment is an appropriate aid in spite of the deficiencies, while the weaker version is that we should make more use of it.

The four recommendations that emerged are

1. More attention needs to be given to the definition of values and ethics in risk assessment.
2. Given the overconfidence that we have in risk assessment, we need more humility.
3. Mistrust is one of the more serious problems that needs to be addressed.
4. Stop bashing the media and lawyers — there is enough blame to go around.

C. Richard Cothern
Chevy Chase, Maryland

COMMENTS FROM MY CO-ORGANIZER, PAUL A. REBERS

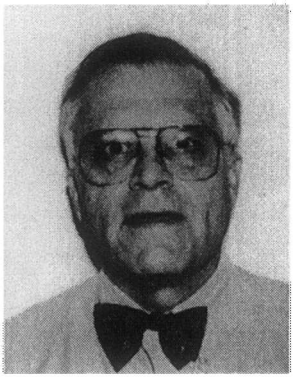
These last paragraphs in the preface are comments from the other organizer of the symposium on which this volume is based. Paul A. Rebers was not only a co-organizer of the symposium, he was the original source of the idea.

My contribution to this book is dedicated to my parents, who taught me ethics; and to Dr. Fred Smith and Dr. Michael Heidelberger who taught me the value of, and the necessity of, an ethical code in order to do good research. There can be no substitute for good mentors in and after college. After I had earned my Ph.D., Dr. Heidelberger taught me to do the "Heidelberger Control", i.e., in order to be more certain of the results, to do one more control, and to repeat the experiment. Dr. Richard Cothern helped me realize the need for looking at the broad picture in making environmental risk assessments.

This symposium was concerned with how values, ethics, and perceptions impact on the making of environmental risk assessments. Ethics were touched on in a previous symposium presented at the ACS national meeting in Boston in 1990 entitled, "Ethical Dilemmas of Chemists", which I organized, and was a basis for the present symposium and book.

If we can recognize that values, ethics, and perceptions, as well as scientific data enter into the process of environmental risk decision making, we will have made an important step forward. This should make it easier for the public to understand how difficult and indeterminate the process may be. It should also make them demand to know the biases as well as the expertise of those making decisions. By being completely honest with the media and the public, we are making an important step in gaining their confidence, and I hope this can be done more in the future than it has been done in the past.

The Editor



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To Ellen Grace, Hannah Elizabeth, and all future generations we pass on the torch of attention to the impact of values, perceptions, and ethics in life's decision making.